WHAT IS CLAIMED IS:

1. A receive system comprising:

an antenna operable to receive a plurality of overall receive signals;

an amplifier operable to amplify each of said overall receive signals;

an analog to digital converter operable to convert said amplified overall receive signals from an analog format to digital values;

a storage device capable of storing said digital values and operable to create a matrix comprising a plurality of rows and columns wherein said rows and columns contain information based on said digital values;

a processor operable to iteratively process said digital values to determine said information and place said information in locations within said matrix;

a phase multiplier operable to multiply signal-only data from said processor with a plurality of phase values and output phase multiplied data; and

a combiner operable to combine said phase multiplied data.

2. A receive system according to claim 1 wherein said antenna comprises a two-dimensional array of elements grouped into a plurality of corresponding right-left groups each right-left group centered around a center group.

3. A receive system according to claim 2 wherein each of said elements is spaced an integer multiple of a half-wavelength from a respective adjacent element.

4. A receive system according to claim 1 wherein said analog to digital converter is further operable to generate digital in-phase and quadrature samples of said overall receive signals wherein said quadrature samples are 90 degrees out of phase with said in-phase samples.

5. A receive system according to claim 1 further comprising:

a local oscillator operable to generate a reference signal; and

a mixer operable to heterodyne said reference signal with said overall receive signals to create a lower frequency version of said overall receive signals.

6. A receive system according to claim 1 wherein said antenna is movable and wherein said receive system further comprises a location adjuster operable to modify said digital samples to accommodate for movement of said antenna.

7. A receive system according to claim 1 wherein said overall receive signals are rotated in phase and then a phase angle is subtracted from said phase rotated signal wherein said phase angle corresponds to a physical angle equal to the difference between a normal to the antenna and a receive angle of said overall receive signals to measure an angle of arrival of said receive signal.

8. A receive system according to claim 1 wherein said phase multiplier multiplies a phase difference by a plurality of integers wherein said phase difference is the difference between a real phase of said received signals and a theoretical phase of said received signals determined from a receive angle of said overall receive signals.

9. A receive system according to claim 8 wherein a plurality of outputs from said phase multiplier are combined coherently thereby increasing an angular sensitivity of the receive system.

10. A method of improving the directivity of a receive system, said method comprising the steps of:

receiving receive signals from an antenna array comprising a plurality of elements;

amplifying said receive signals to form amplified signal-plus-noise signals;

determining a phi phase equivalent to a difference between a reference phase and a phase of said amplified signal-plus-noise signals;

forming in-phase and quadrature versions of said amplified signal-plus-noise signals by subtracting said phi phase from said phase of said amplified signal-plus-noise signals to form said in-phase version and adding or subtracting about ninety degrees from said in-phase version to form said quadrature version;

detecting a phase difference between receive signals received from adjacent elements of said antenna array and an amplitude of said receive signal received from each element of said antenna array;

multiplying said phase difference by a series of integers ranging from 1 to the number of elements in said antenna array to create a plurality of outputs;

summing said outputs coherently to form an improved overall output with an improved sensitivity substantially greater than a normal sensitivity of said receive signals; and

computing the arctangent of a noise reduced quadrature signal divided by a noise reduced in-phase signal.

11. A method for increasing the signal to noise ratio of a receive system, said method comprising the steps of:

receiving receive signals from an antenna array comprising a plurality of elements;

amplifying said receive signals to form amplified signal-plus-noise signals;

creating in-phase and qudrature versions of said receive signals wherein said in-phase and quadrature versions are about ninety degrees out of phase with each other;

determining an average noise and an average signal of said amplified signal-plus-noise signals;

forming separate matrices each associated with either said in-phase or said quadrature versions of said receive signals, said matrices comprising digital representations of a plurality of values, said values consisting of said in-phase or quadrature versions of said receive signals received from each element, a deviation of said in-phase or quadrature versions of said receive signals from said average noise, a minimum deviation;

performing an iterative process on data contained in said matrices;

calculating an estimate of a noise-only portion of in-phase and quadrature components of said receive signals by using an iterative process to converge, in steps, to said estimate; and

subtracting said noise-only portion of said receive signals from said receive signals to form a signal-only portion of said receive signal.

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